IN THE CLAIMS

This listing of claims replaces all prior listings and versions of the claims in the present application.

Listing of Claims:

Claims 1-16 (Canceled).

Claim 17 (Currently Amended): A sliding door, comprising:

a cam guide;

at least one shutter;

a clamp configured to be fixed to said at least one shutter;

a pair of first carriages; and

a pair of second carriages, said second carriages being supported and guided by a rail, which is realized by a profile, wherein the profile is placed along a length of an opening which is to be opened and closed by said sliding door, for translating said second carriages along said opening;

wherein said clamp is configured to link said at least one shutter to said pair of first carriages,

each one of said first carriages is translatable longitudinally along [[its]] a respective one of said second carriages and is translatable relatively to the other of said first carriages, and

said cam guide comprises grooves into each of which a roller of said first carriages respectively can engage such that each roller is movable longitudinally and ~~transversally~~ coaxially with respect to said rail.

Claim 18 (Previously Presented): A sliding door according to claim 17, wherein for longitudinal translation of the first carriages along tracks of their respective longitudinal second carriages, said shutter is translatable transversally with respect to the axis of the rail, which is orientated longitudinally to the opening to be closed and opened.

Claim 19 (Previously Presented): A sliding door according to claim 17, wherein said shutter is linked to the pair of first carriages by one or more clamps, which bring the at least one shutter for accomplishing movement resulting from the longitudinal translation of the second carriages along the rail matched with the transversal movement of the first carriages as an effect of their respective engagement with the grooves.

Claim 20 (Previously Presented): A sliding door according to claim 19, wherein each one of said first carriages includes rollers or another sliding system, for being translatable along the tracks of said second carriages which respectively include a pulley for sliding along the rail for support and the translation of the at least one shutter.

Claim 21 (Currently Amended): A sliding door according to claim 20, wherein one of said first carriages is placed laterally to said at least one shutter, so that its guide roller can be housed and can slide to ~~bended~~ bent ends of a long groove of said grooves of the guide cam.

Claim 22 (Currently Amended): A sliding door according to claim 20, wherein one of said first carriages is placed on the center line of a longitudinal side of the at least one shutter, so that its guide roller can be housed and can slide to ~~bended~~ bent ends of a short groove portion of said grooves of the guide cam.

Claim 23 (Previously Presented): A sliding door according to claim 17, wherein one of said first carriages is placed respectively on an outer edge and the other one on the center line of an upper side of the at least one shutter, said first carriages being steadily linked to the at least one shutter by one or more clamps.

Claim 24 (Previously Presented): A sliding door according to claim 17, wherein one of said first carriages is placed on the outer edge and the other one on the center line of a lower side of the at least one shutter by one or more clamps.

Claim 25 (Currently Amended): A sliding door according to claim 19, ~~wherein the~~ second carriages ~~include~~ each further comprising a pulley and ~~with~~ a sliding wheel that ~~slides~~ is slidable on a track of the ~~supporting~~ profile, the profile including a shoulder for acting together with the support and guide of the at least one shutter during the translation along the rail.

Claim 26 (Currently Amended): A sliding door according to claim 20, ~~wherein one of~~ the ~~pulleys~~ pulley of the second carriages ~~includes~~ further comprising a flaring member ~~wide enough to rotate on the rail even when they are lightly tilted with respect to the axis of the same rail~~.

Claim 27 (Currently Amended): Sliding door according to claim 20, ~~wherein~~ one of the second carriages ~~includes~~ further comprises a stop wheel acting as a shoulder on the track ~~of the supporting profile~~, to assure linearity of the translation of the at least one shutter~~, also in case of pushes or uneven thrusts~~.

Claim 28 (Currently Amended): A sliding door according to claim 17, ~~where combining~~ further comprising a device ~~is combined for the~~ configured for leading and ~~control of the wide~~ controlling opening of the at least one shutter so as to be opened or to be closed for the respective overlapping and coplanarity, ~~with a~~ said guide device ~~placed~~ being positioned on [[the]] a side opposite [[of]] a longitudinal side of said at least one shutter, said ~~opposite~~ guide device being ~~fundamentally provided~~ configured for a ~~better~~ distribution of [[the]] stress in ~~phase~~ a position of inclination or partial hinging ~~of the~~ of said at least one shutter upon moving of said at least one shutter ~~as an effect of the different position of the first carriages during their translation into the respective bended portions of the guide cam~~.

Claim 29 (Currently Amended): A sliding door according to claim 28, ~~wherein an elbow-shaped~~ further comprising a transmission shaft which is linked to a section of the profile for the support of the second carriages, by interposition of a roller that slides on the sides of an opening of the section, said ~~elbow-shaped~~ shaft being steadily fixed to the shutter by supports, and an opposite extremity of the shaft being ~~adjusted~~ adjustable to slide inside an opening of a guide which is placed on a side opposite where the carriages and little carriage system are located.

Claim 30 (Currently Amended): A sliding door according to claim 28, ~~wherein an elbow-shaped~~ further comprising a transmission shaft which has [[its]] an upper extremity thereof engaged in the opening of the ~~supporting~~ profile, the first carriage having an upper pulley, the [[and]] roller of the first carriage being linked to a ceiling portion of the opening, and an [[the]] opposite extremity of the shaft being engaged in a linear guide placed on a bottom portion of the opening.

Claim 31 (Currently Amended): A sliding door according to claim ~~28, wherein~~ 30, the linear guide ~~being linked to the bottom is formed by~~ further comprising a guide cam ~~being~~ which is identical [[and]] in shape with and is positioned parallel to the guide cam of [[the]] a ceiling portion of the opening, ~~requiring only~~ and including a lower pivot for [[the]] sliding of the at least one shutter without ~~having to apply to~~ use of the ~~elbow-shaped~~ shaft.

Claim 32 (Currently Amended): A sliding door according to claim 24, ~~wherein~~ further comprising a guide cam which is provided ~~with the~~ in a ceiling portion of the opening ~~that implies~~ and wherein the at least one shutter to be guided and controlled by the first carriages with the second carriages ~~being~~ is supported by clamps placed on [[the]] a lower side of ~~the same~~ the at least one shutter.

Claim 33 (New): A sliding door, comprising:

a cam guide;

at least one shutter;

a clamp configured to be fixed to said at least one shutter;

a pair of first carriages; and

a pair of second carriages, said second carriages being supported and guided by a rail, which is realized by a profile, wherein the profile is placed along a length of an opening which is to be opened and closed by said sliding door, for translating said second carriages along said opening;

wherein said clamp is configured to link said at least one shutter to said pair of first carriages,

each one of said first carriages is translatable longitudinally along a respective one of said second carriages and is translatable relatively to the other of said first carriages, and

said cam guide comprises grooves into each of which a roller of said first carriages respectively can engage such that each roller is movable longitudinally and coaxially with respect to said rail, and

wherein said grooves of said cam guide have bent ends.

Claim 34 (New): A sliding door, comprising:

a cam guide;

at least one shutter;

a clamp configured to be fixed to said at least one shutter;

a pair of first carriages; and

a pair of second carriages, said second carriages being supported and guided by a rail, which is realized by a profile, wherein the profile is placed along a length of an opening which is to be opened and closed by said sliding door, for translating said second carriages along said opening;

wherein said clamp is configured to link said at least one shutter to said pair of first carriages,

each one of said first carriages is translatable longitudinally along a respective one of said second carriages and is translatable relatively to the other of said first carriages, and

said cam guide comprises grooves into each of which a roller of said first carriages respectively can engage such that each roller is movable longitudinally and coaxially with respect to said rail;

a device configured for leading a control of a wide opening of the at least one shutter to be opened or to be closed for the respective overlapping and coplanarity, said guide device being positioned on a side opposite of a longitudinal side of said at least one shutter, said opposite guide device being configured for distribution of stress and a position of inclination

or partial hinging upon moving at least one shutter upon occurrence of a different position of the first carriage during translation thereof into the respective bent portions of the guide cam;

a transmission shaft which is linked to a section of the profile for the support of the second carriages, by interposition of a roller that slides on the sides of an opening of the section, said shaft being fixed to the shutter by supports, and wherein an opposite extremity of the shaft is adjustable to slide inside an opening of a guide which is placed on a side opposite where the carriages and little carriage system are located;

wherein the transmission shaft has an upper extremity thereof engaged in the opening of the profile, the upper pulley and the roller of the first carriage being linked to a ceiling portion of the opening, the opposite extremity of the shaft being engaged in a linear guide placed on a bottom portion of the opening;

the linear guide comprising a guide cam which is identical in shape with and is positioned and parallel to the guide cam of the ceiling portion of the opening, and including a lower pivot for the sliding of the at least one shutter without use of the shaft; and including a guide provided in a ceiling portion of the opening and wherein the at least one shutter to be guided and controlled by the first carriages with the second carriages is supported by clamps placed on a lower side of the at least one shutter.